



UNIVERSITI PUTRA MALAYSIA

**INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)
FOR AGRICULTURAL DEVELOPMENT: FACTORS ASSOCIATED
WITH COMPUTER UTILIZATION AT AREA FARMERS
ORGANIZATIONS IN PENINSULAR MALAYSIA**

BAHIYAH BINTI OMAR

FBMK 2003 1

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IN PENINSULAR MALAYSIA**

By

BAHIYAH BINTI OMAR

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia
in Fulfillment of the Requirement for the Degree of Master of Science**

January 2003



In the name of Allah. Most Gracious, Most Merciful

**This thesis is dedicated to my beloved husband, Raden Suzaili
and daughter, Radin Nur Inarah**

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

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The utilization of Information and Communication Technology [ICT] is believed to bring positive impact on productivity and competitiveness in all sectors including the agricultural sector. This is because ICT promotes efficiency through cost and time saving and enhances information synergies through sharing of information and pooling of resources. However, Malaysian agricultural sector is still lagging behind in ICT development as compared to the manufacturing and banking sectors.

Since ICT has always been associated with computer technology, this study was carried out to determine factors associated with computer utilization in one of the important organizations in Malaysian agricultural sector that is the farmers' organization. The factors examined in this study include individual, organizational

and technological factors. The selection of the independent variables was based on Rogers' model of diffusion of innovation. Meanwhile, computer utilization was measured in terms of intensity, frequency and diversity of use. The relationships between independent variables and computer utilization were also sought in determining factors that influence computer utilization at farmers' organizations.

Data collection was carried out via mail by using self-administered questionnaires. A total of 209 respondents from 23 area farmers organizations [PPKs] were involved in this study. The data were analyzed using Statistical Package for Social Sciences [SPSS] version 10.1 and the findings were presented using descriptive statistics and Spearman Rho correlation.

The findings of this study revealed that the levels of respondents' attitude towards computer and their perception on technological factors were high. The levels of computer literacy and facilitating conditions were moderate. Meanwhile, the level of communication channels use was low. The findings also showed that respondents with better education, more positive cognitive attitude, higher computer literacy [i.e: computer knowledge and skills], more usage of communication channels [i.e: interpersonal and mass media], better perception on relative advantages of computer and lower perception of computer complexity, utilize computer more in the organization.

In conclusion, computer utilization could be improved by encouraging participations in ICT programs, providing sufficient and up-to-date computer trainings to all individuals, acculturating ICT related-activities in the organization and forming IT unit or employing dedicated person(s) to provide internal supervision on computer use and to deal with hardware or software difficulties.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Master Sains

**TEKNOLOGI KOMUNIKASI DAN MAKLUMAT (TKM) UNTUK
PEMBANGUNAN PERTANIAN: FAKTOR-FAKTOR BERKAITAN
DENGAN PENGGUNAAN KOMPUTER DI PERTUBUHAN PELADANG
KAWASAN DI SEMENANJUNG MALAYSIA**

Oleh

BAHIYAH BINTI OMAR

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Penggunaan Teknologi Komunikasi dan Maklumat [TKM] dipercayai dapat membawa impak yang positif terhadap produktiviti dan daya saing dalam semua sektor termasuk sektor pertanian. Ini adalah kerana TKM meningkatkan kecekapan melalui penjimatan kos dan masa. Di samping itu, TKM menjadi penggerak kepada sinergi maklumat [*information synergy*] melalui perkongsian maklumat dan penggabungan sumber maklumat. Namun, sektor pertanian di Malaysia masih ketinggalan di dalam arus pembangunan TKM jika dibandingkan dengan sektor pembuatan dan perbankan.

Memandangkan TKM seringkali dikaitkan dengan komputer, kajian ini dijalankan untuk mengenalpasti faktor-faktor berkaitan dengan penggunaan komputer di salah satu organisasi penting dalam sektor pertanian di Malaysia iaitu pertubuhan

peladang. Faktor-faktor yang dianalisis dalam kajian ini adalah faktor individu, faktor organisasi dan faktor teknologi. Pemilihan angkuabah bebas kajian dibuat berdasarkan model resapan inovasi oleh Rogers. Sementara itu, penggunaan komputer diukur dari segi jangkamasa, kekerapan dan kepelbagaian penggunaan. Perkaitan di antara angkuabah bebas kajian dengan penggunaan komputer juga dilakukan untuk mengetahui faktor-faktor yang mempengaruhi penggunaan komputer di pertubuhan peladang.

Pengumpulan data dibuat melalui pos dengan menggunakan borang soalselidik. Sejumlah 209 responden dari 23 Pertubuhan Peladang Kawasan [PPK] terlibat dalam kajian ini. Kemudian, data tersebut dianalisis menggunakan perisian *Statistical Package for Social Sciences* [SPSS] versi 10.1, manakala hasil kajian dibentangkan menggunakan diskriptif statistik dan Pekali Korelasi Spearman.

Hasil kajian menunjukkan bahawa tahap sikap responden terhadap komputer dan tahap persepsi mereka terhadap faktor teknologi adalah tinggi. Manakala, tahap literasi komputer dan tahap keadaan organisasi yang menggalakkan penggunaan komputer adalah sederhana. Sementara itu, tahap penggunaan saluran komunikasi adalah rendah. Kajian ini juga mendapati responden yang berpendidikan tinggi, mempunyai permikiran yang lebih positif terhadap komputer, tahap literasi komputer [i.e: pengetahuan tentang komputer and kemahiran menggunakan komputer] yang lebih tinggi, penggunaan saluran komunikasi [i.e: komunikasi antara perseorangan dan media massa] yang lebih kerap, persepsi yang tinggi terhadap kelebihan

komputer dan persepsi yang rendah terhadap kesulitan penggunaan komputer, mempunyai tahap penggunaan komputer yang lebih tinggi.

Kesimpulannya, penggunaan komputer boleh dipertingkatkan dengan menggalakkan penyertaan dalam program-program TKM, menyediakan latihan komputer yang mencukupi dan terkini kepada semua, membudayakan aktiviti-aktiviti berkaitan dengan TKM di dalam organisasi, menubuhkan unit teknologi maklumat atau melantik individu khusus untuk menyelia penggunaan komputer dan membantu menyelesaikan sebarang kesulitan berkaitan perkakasan [*hardware*] mahupun perisian [*software*].

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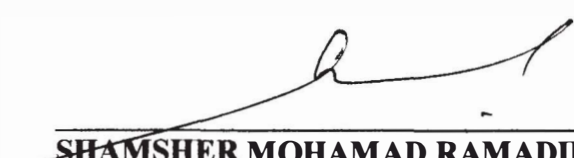
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I hereby declare that the thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.



BAHIYAH BINTI OMAR

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LIST OF ABBREVIATIONS

| | | | |
|----|---------|---|---|
| 1 | CT | - | Communication Technology |
| 2 | FA | - | Farmers Association |
| 3 | FAO | - | Food and Agriculture Organization |
| 4 | FELCRA- | | Federal Land Rehabilitation and Consolidation Authority |
| 5 | FELDA- | | Federal Land Development Authority |
| 6 | FAMA | - | Federal Agricultural Marketing Authority |
| 7 | FO | - | Farmers Organization |
| 8 | GDP | - | Gross Domestic Production |
| 9 | ICT | - | Information Communication Technology |
| 10 | IT | - | Information Technology |
| 11 | LPP | - | Lembaga Pertubuhan Peladang [Farmers Organization Authority] |
| 12 | LPPN | - | Lembaga Pertubuhan Peladang Negeri [State Farmers Organization Authority] |
| 13 | MARDI- | | Malaysian Agricultural Research and Development |
| 14 | MOA | - | Ministry of Agriculture |
| 15 | MTDC- | | Malaysian Technology Development Corporation |
| 16 | NAFAS | - | National Farmers Organization |
| 17 | NAP | - | National Agricultural Policy |
| 18 | NASS | - | National Agricultural Statistics Service |
| 19 | OPP | - | Outline Perspective Plan |
| 20 | PPK | - | Pertubuhan Peladang Kawasan [Area Farmers Organization] |
| 21 | PPN | - | Pertubuhan Peladang Negeri [State Farmers Organization] |

CHAPTER I

INTRODUCTION

This chapter introduces the background and the problems of the study. It also highlights the research objectives and indicates significance and limitations of the study.

Background of Study

Agricultural sector is a very important sector in Malaysia. It is the source of food for the nation as well as the provider of raw materials for other sectors and in particular manufacturing. In Malaysia, the products of agriculture include main crops, livestock, forestry and fishing. There are two important commodities in Agricultural sector. Firstly, the agricultural industrial commodities consisting of rubber, crude palm oil, palm kernel oil, sawlogs, cocoa, pepper, pineapple, tobacco and flowers. Secondly, the food commodities which include paddy, fisheries [i.e: marine and aquaculture], livestock [i.e: beef, mutton, pork, poultry, eggs and milk], fruits, vegetables and coconut (Malaysia, 2001).

Although agricultural sector contributes significantly to the Malaysian economy, its share in the country's economic output is decreasing. The industrialization policy, which commenced in the late 1950s, has had a significant impact on agriculture. It has made agriculture less attractive as compared to non-agriculture. During the second Outline Perspective Plan [OPP2] period, the growth

rate of agricultural sector is at 3.5% per annum only as compared to 10.4% per annum for manufacturing sectors (Mahathir, 2001). In 1970, agricultural sector contributed 29% to the country's Gross Domestic Production [GDP] which then decreased to 23% in 1980 to 19% in 1990 and to 8.7% in 2000. Its contribution to export earnings also decreased from 60% in 1970 to 17% in 1990 and to 6.1% in 2000 (Malaysia, 1971, 1981, 1991, 2001). Although the contribution of agricultural sector to the Malaysia's GDP is declining dramatically, it remains as the major economic activities particularly in rural areas. Hence, agriculture has always been associated with the rural poor. Rural farming population has been embedded with the problems of low income and productivity.

The problems in agricultural sector are immense. It ranges from low productivity, inconsistent supply, lack of domestic productions, low commodity prices, uneconomic size of holdings and acute shortage of labour (Ministry of Agriculture [MOA], 1999), over-supply, lack of demand and stock overhang (Lim, 1994). In order to safeguard this sector and enhance its competitiveness, the Malaysian government has established various institutions and organizations to manage agricultural activities. Among the institutions and organizations that work hand in hand to support agriculture are; Ministry of Agriculture [MOA], Bank of Agriculture, Federal Agricultural Marketing Authority [FAMA], Malaysian Agricultural Research and Development [MARDI], Federal Land Development Authority [FELDA], Federal Land Rehabilitation and Consolidation Authority

[FELCRA], Rubber Industries Smallholders Development Authority [RISDA] and Farmers' Organization Authority [LPP].

Among the agricultural organizations, LPP is regarded as “the umbrella organization for all farmers in this country” by Tun Razak bin Hussein, the Former Prime Minister of Malaysia (Ahmad Sarji, 1974). The establishment of farmers organizations had given the farmers the bargaining power which was formerly abused by the middle men who controlled the prices of farmers' produce and supplied farm inputs and credits at excessive price (Ahmad Mahdzan, 1990).

The history of the founding of LPP begins when the Department of Agriculture in 1959 developed new forms of association called Farmers' Associations [FAs]. At the beginning of the establishment, FAs functioned as single purpose associations primarily for the promotion of agricultural production and extension of education. Later in 1967, these single purpose FAs were converted into multi-purpose FAs. They were larger in organization, more comprehensive in structure and provided integrated services such as extension, credit, marketing, farm input supplies, transportation, warehousing and processing services. Due to this, FAs experienced conflicting roles with agro-based Co-operatives Societies established in 1922 by the Department of Co-operative Development under the Ministry of Rural Economic Department, which focused on rural development activities. The problems were mainly rooted from overlapping of area of operation and functional duplication that caused confusion and uncertainty among the rural people. In view of the problems,

Farmers Organization Authority or normally known in Malay language as Lembaga Pertubuhan Peladang [LPP] was established in 1973 by the Government to streamline the agricultural activities and rural development. The government has also introduced an act called the Farmers Organization Act [Akta Lembaga Pertubuhan Peladang] on the 1st November 1973, which provides for the integration of farmers associations and agro-based co-operatives societies under one banner called Farmers Organization [FO] (Ahmad Sarji, 1973).

In order to be effective and efficient in its operations, FOs are structured in three-level system with Area Farmers Organization or Pertubuhan Peladang Kawasan [PPK] at the grass roots, followed by State Farmers Organization or Pertubuhan Peladang Negeri [PPN] and The National Farmers Associations [NAFAS] or Pertubuhan Peladang Kebangsaan. On top of that, all levels of FOs are supervised by Farmers Organization Authority (LPP) based at its headquarters in Kuala Lumpur. To help administer the large network of FOs, there is another organization called States Farmers Organization Authority or Lembaga Pertubuhan Peladang Negeri [LPPN] which functions as branch offices of LPP.

Firstly, Area Farmers Organizations [PPKs] are independent organizations whose members are registered farmers of a particular area delineated by LPP. They have their own Board of Directors [BOD] elected in their annual general meetings held every year. Each PPK is divided into several units and representatives from each farmers unit will compete for the post of BOD in the respective area. The post of

BOD is categorized as officers in a PPK while the other category is called workers. Key personnel of workers [i.e. manager and assistant manager] are usually seconded from government offices, whereas other positions [e.g. clerks, drivers, book keepers, etc] are hired by the PPK itself. The ultimate objective of PPK establishment is to increase farmers' income. Currently there are 268 PPKs throughout Malaysia.

Secondly, States Farmers Organizations [PPNs] are organizations set up by the PPKs of the respective states. At this stage, PPKs within a particular state will nominate their representatives to represent them at state level. PPNs carry out agro-based activities that can generate profits on their own or in collaboration with PPKs. At present, there are 13 PPNs throughout Malaysia.

Thirdly, the National Farmers Association [NAFAS] is the highest-level organization of FOs. It represents all state level FOs. Each PPN from every state will nominate its representatives to play their roles at this national level. The objectives of NAFAS are broad, which include raising economic and social standards, knowledge and expertise as well as production and revenue of Malaysian farmers.

Meanwhile, Farmers' Organization Authority [LPP] is a statutory body under Ministry of Agriculture established in 1973. The main responsibility of LPP is to develop FOs at area, state and national levels to become more competitive and productive. The functions of LPP as stated under Section 4 (1) and Section 4 (3) of LPP Act are: (1) to promote, stimulate, facilitate and undertake economic and social